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Cindy Juby Ph.D.

Department of Social Work University of Northern Iowa

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Substance Abuse Program Availability and Child Maltreatment

Cindy Juby, Ph.D., Department of Social Work University of Northern Iowa

Introduction

While the empirical literature on child maltreatment is substantial, the vast majority of data is obtained from studies conducted in metropolitan areas. Very few have included rural populations or compare rural and urban populations, even though 21% of the U.S. population lives in rural areas (U.S. Census, 1999). Because urban study findings cannot be easily translated to rural settings, it is necessary for researchers to adequately represent rural populations, especially in studies that affect the well-being of children and their families.

The focus of this study is the state of Iowa. The purpose is to examine Iowan counties in order to determine the relationship between substance use, treatment program availability, and child maltreatment. The following hypotheses will be addressed in the study: the availability of certified substance abuse treatment programs will be associated with decreased child maltreatment rates, drug and DUI arrest rates will be higher for counties that do not have certified substance abuse treatment programs, child maltreatment rates will be higher in counties with high drug and DUI arrest rates, and variation will exist between nonmetropolitan/nonadjacent, nonmetropolitan/adjacent, and metropolitan counties.

National rates of child maltreatment have decreased in recent years (from 12.2 per 1,000 in 2000 to 11.9 per 1,000 in 2005); however, during that same period, rates in Iowa have dramatically increased. In 2001, Iowa's abuse rate was 18.0. In 2005, that rate increased to 20.9 confirmed cases; nearly double the national rate (USDHHS, 2007). The 2005 maltreatment rates in Iowa varied widely across counties, with a range of 8.1 in Sioux County to 59.1 in Wapello County (Iowa Kids Count, 2006).

Some professionals suggest Iowa's increased maltreatment rate is related to increased parental substance use, especially methamphetamine (University of Iowa Health Care Newsletter, 2005). Approximately ten percent of confirmed child abuse cases in 2003 were directly related to illicit drug use, and two-thirds of neglect cases had underlying components of parental substance abuse (University of Iowa Health Care Newsletter, 2005). One aspect of this study will be to further examine the relationship between substance use and child maltreatment.

While both rural and urban communities face many of the same challenges, the way in which these problems manifest themselves differ from urban to rural settings. Rural challenges involve a lack of resources, distance issues, and communication problems that may be less problematic for families living in urban areas (Mack & Boehm, 2001). For individuals with substance abuse issues, accessing treatment programs may be a challenge. In some rural areas, the nearest treatment facility can be as far away as 40 miles and the cost of fuel and travel time create major obstacles in these cases.

Literature Review

Child maltreatment

Limited research exists on the prevalence of child abuse and neglect in rural areas and, while urban explanations may at times parallel rural explanations, it is a fallacy that they are comparable to the extent that research of one population can be generalized to the other. Rural populations must be considered in child welfare studies in order to fully understand child abuse and neglect in this population. At least as far back as 1993, the U.S. Advisory Board on Child Abuse and Neglect recognized the dearth of information on rural child welfare when it stated, "The safety of children should not be a function of geography". Unfortunately, adequate research of this population continues to be lacking.

For the few studies that compare rural and urban child maltreatment, the findings are mixed. English, Marshall, Brummel & Orme (1999) found that rereferrals and recurrences of child maltreatment were higher for rural areas than for metropolitan areas, while other researchers (Sedlak & Broadhurst 1996; Strong, Del Grosso, Burwick, Jethwani, & Ponza, 2005; Weisheit & Donnermeyer, 2002) suggest that no significant differences exist in rates or changes in abuse or neglect for rural counties when compared to urban and suburban counties.

Likewise, Ernst (2000) reported increased rates of physical abuse and Menard and Ruback (2003) reported increased rates of sexual abuse in rural populations, while Cappelleri, Eckenrode, & Powers (1993) reported no urban-rural differences in the rates of sexual abuse or physical abuse. These inconsistent results may be due to methodological issues that are common when studying populations that are difficult to access. Relying on child maltreatment rates, which is commonplace for most rural studies, may not be the most accurate means of obtaining this information.

Substance Abuse

The child welfare system, in both rural and urban locales, is substantially impacted by substance abuse. An estimated nine percent of children in the United States live with at least one parent who abuses drugs or alcohol (USDHHS, 2003) and these children are more likely to be victims of maltreatment than children whose parents do not abuse drugs or alcohol (Haight, Jacobsen, Black, Kingery, Sheridan, & Mulder, 2005; Dube, Anda, Felitti, Croft, Edwards & Giles, 2001).

Numerous studies have identified parental drug and alcohol use as a correlate of child maltreatment. Kelleher, Chaffin, Hollenberg, and Fisher (1994) found, after controlling for DSM-Axis II and household factors, that drug and alcohol use tripled the risk of maltreatment and Leonard (2002) reported that studies in both the United States and New Zealand found significant associations between drug and alcohol use and child maltreatment. Similarly, other studies (Kelly, 2002; Miller, Smyth, & Mudar, 1999) reflect these findings and substantiate the relationship between these two variables.

While many studies of substance abuse utilize an aggregate measure that includes any substance used for mood-altering purposes, one particular drug has made headlines and appears to have a dramatic impact on child maltreatment. That drug, methamphetamine, is currently a major cause of child abuse and neglect (Kyle & Hansell, 2005) and is a considerable problem in the rural Midwest (Haight, et al., 2005; University of Iowa Health Care Newsletter, 2005). Children whose parents abuse methamphetamine are often exposed to toxic chemicals, violence, criminal behavior, and neglect as well as physical, sexual, and emotional abuse (Anglin, Burke,

Perrochet, Stamper, & Dawad-Noursi, 2000; Cretzmeyer, Sarrazin, Huber, Block, & Hall, 2003; Haight, et al., 2005).

Similar to child maltreatment, researchers concerned with the problems of substance abuse have focused their attention almost exclusively on urban America (Schoeneberger, Leukefeld, Hiller, & Godlaski, 2006). The studies that do exist often use arrest rates or treatment program usage as a measure of the extent of the problem.

Rural living was once considered a haven for those wishing to escape the crime and drug laden problems of the inner cities. Rural regions were protective areas where children could be raised without the fear urban parents often faced. Drug use was mainly limited to alcohol and tobacco use and the hard-core drugs, such as heroin and cocaine, were seen as urban evils.

Unfortunately, this view of rural living is changing. The farm crisis of the 1980s created a rural structure that is becoming similar to inner areas of major cities. The same social forces that molded the inner cities of today are now affecting rural areas: intergenerational poverty, out-migration of more prosperous and younger residents, and an accelerated downward spiral resulting in conditions similar to inner city ghettos (Schoeneberger, Leukefeld, Hiller, & Godlaski, 2006).

Disparities between urban and rural drug use began to diminish after 1985. That year marked the beginning of a temporary decline in overall drug use; however, rural rates declined more gradually than urban rates. By 1991, only two percentage points separated the two groups and the two percent disparity has remained constant since (Van Gundy, 2006).

Studies reveal a disturbing trend in rural substance use with the introduction of methamphetamine and OxyContin. The Drug Enforcement Agency currently considers methamphetamine the number one illegal drug in rural America (National Advisory Committee on Rural Health & Human Services – 2007 Report). Rural regions are ideal for maintaining methamphetamine labs as their proximity allows the producers to avoid detection from the powerful fumes emitted during the manufacturing process. Additionally, substances used in the production of methamphetamine (i.e. anhydrous ammonia, a commonly used fertilizer) are readily available for purchase in these areas.

Despite the media coverage of the methamphetamine and OxyContin epidemics, use of these substances is only one one-hundredth as common as alcohol use. The National Advisory Committee on Rural Health & Human Services (2007 Report) refers to alcohol as “universally, the substance of choice” among youth and adults in both rural and urban areas. However, while the use of alcohol is not exclusively a rural or urban problem, at least one study (Schoeneberger, Leukefeld, Hiller, and Godlaski, 2006) has found that alcohol use, including use to the point of intoxication, is higher in very rural areas.

Treatment Programs

Barriers to treatment exist, whether one lives in rural American or urban America, however, the types of barriers vary depending on the geographic area. A major barrier for those living in rural areas is the apparent lack of available services. Many rural communities do not have adequate substance abuse treatment facilities to deal with the growing problem of rural substance use (Haight, et al., 2005).

Political decisions that determine treatment locales are often based on the number of individuals needing treatment in an area. Because of the low numbers of individuals spread over vast areas, funding for rural treatment centers are stretched thin (Mack & Boehm, 2001). Even for those rural programs that do exist, services are more limited than in urban areas. Outmigration of professionals has led to a shortage of trained practitioners who can help identify

substance abuse and supervise treatment (Strong, Del Grosso, Burwick, Jethwani, & Ponza, 2005) and few providers are knowledgeable of rural culture (National Advisory Committee on Rural Health & Human Services, 2007).

In Iowa, 49 of the 99 counties lack a certified treatment facility and those seeking treatment often must travel to other counties to receive services. Surveys of welfare recipients in rural areas show that lack of transportation is a key barrier to accessing services in these communities (Strong, Del Grosso, Burwick, Jethwani, & Ponza, 2005). In 2000, one rural state spent 77% of welfare funding on transportation assistance and car repairs so their clients could access support services (Plein 2001). Travel time, combined with the cost of gas and vehicle maintenance, can be the determining factor for those seeking treatment. For many low-income rural residents, the time and cost are just too great.

The objective of the present study is to examine the effect substance abuse treatment availability has on child maltreatment in rural and small metro areas. Iowa, the focus of this study, is considered a rural state and is similar in structure to other rural Midwest counties in the United States.

Methodology

Sample

The ninety-nine counties in Iowa were the item of analysis for this study. The data were accessed using a variety of existing measures, including child maltreatment rates, drug and DUI arrest rates, and poverty and minority percentages.

In order to obtain an adequate sample size for the analysis and to obtain an average measure for the four year study period, data for the counties were entered four times each; once for every year from 2002 to 2005, for a total sample size of 396.

Measurement

Child Maltreatment The primary criterion variable in this study was child maltreatment. Child maltreatment was measured as a continuous variable using child maltreatment rates obtained from the 2005 Iowa Kids Count report. The rates reflect only substantiated cases and do not include all reported cases. Data were collected for four years, from 2002 to 2005.

Urban Influence The Beale Urban Influence Codes (Beale & Johnson, 1995; Butler & Beale, 1994) provide a rigorous measure for categorizing rural and non-rural areas. The measure consists of a system of codes that conflates area population with proximity to urban services. The codes range from 1 to 12, with larger numbers being assigned to the most rural and isolated counties. Because the codes are labeled according to the population of their largest city or town and their proximity to metro and micro areas, they can be categorized into three major groups: 1) metropolitan counties, 2) nonmetropolitan counties adjacent to metro areas, and 3) nonmetropolitan counties not adjacent to metro areas.

Treatment Availability Treatment availability was measured as a dichotomous variable with a value of "0" assigned to counties with no licensed substance abuse treatment program and a value of "1" assigned to those that have at least one licensed program. The data for this variable were obtained from the Iowa Department of Public Health, Division of Behavioral Health and Professional Licensure, 2007.

Substance Abuse Substance abuse data were collected from the Iowa Uniform Crime Reporting document (UCR, 2007). These data reflect drug and alcohol arrests per year by

county. Four different offenses related to substance use were included in the UCR report: Drug/Narcotic Violation, Drug Equipment Violation, Driving under the Influence, and Drunkenness. Drug Equipment Violation is often an offense given when an individual is arrested for Drug/Narcotic Violation. Similarly, Drunkenness is often an offense given to individuals arrested for Driving under the Influence. Using all four arrest offenses would create duplication; therefore, Drug/Narcotic Violation was the measure used to determine drug use and Driving under the Influence was the measure used to determine the DUI arrest variable. Drug Equipment Violation and Drunkenness data were excluded from the analysis.

Other Variables Minority and poverty status were included in the analysis, as well. These data were obtained from the 1999 Census for each of the 99 counties. Minority status was operationalized as the percent of the population that was non-White. The percentage of each county's poverty population at the time of the census was included as a continuous variable for the poverty measure.

Results

Description of the Sample

The most urban areas, those with Urban Influence Codes (UIC) of 1 and 2, made up 21% ($N = 84$) of the sample. Counties with Codes from 3 to 7 (nonmetropolitan counties adjacent to metro areas) totaled 152 (38%), and those with Codes from 8 to 12 (nonmetropolitan counties not adjacent to metro areas) totaled 160 (40%) (Table 1).

Table 1. Sample Characteristics ($N = 396$)

| | <i>N</i> | <i>Percent</i> | <i>Mean</i> | <i>Range</i> |
|-------------------------------|----------|----------------|-------------|--------------|
| Child Maltreatment Rate | | | 19.3 | 0.9 - 59.1 |
| Drug Arrest Rate | | | 243.2 | 0.0 - 941.8 |
| DUI Arrest Rate | | | 395.0 | 0.0 - 1113.9 |
| Poverty Rate | | | 9.1 | 4.6 - 15.5 |
| Minority Rate | | | 4.1 | 0.2 - 18.4 |
| Treatment Program in County | 200 | 50.5 | | |
| Urban Influence Codes 1 & 2 | 84 | 21 | | |
| Urban Influence Codes 3 to 7 | 152 | 38 | | |
| Urban Influence Codes 8 to 12 | 160 | 40 | | |

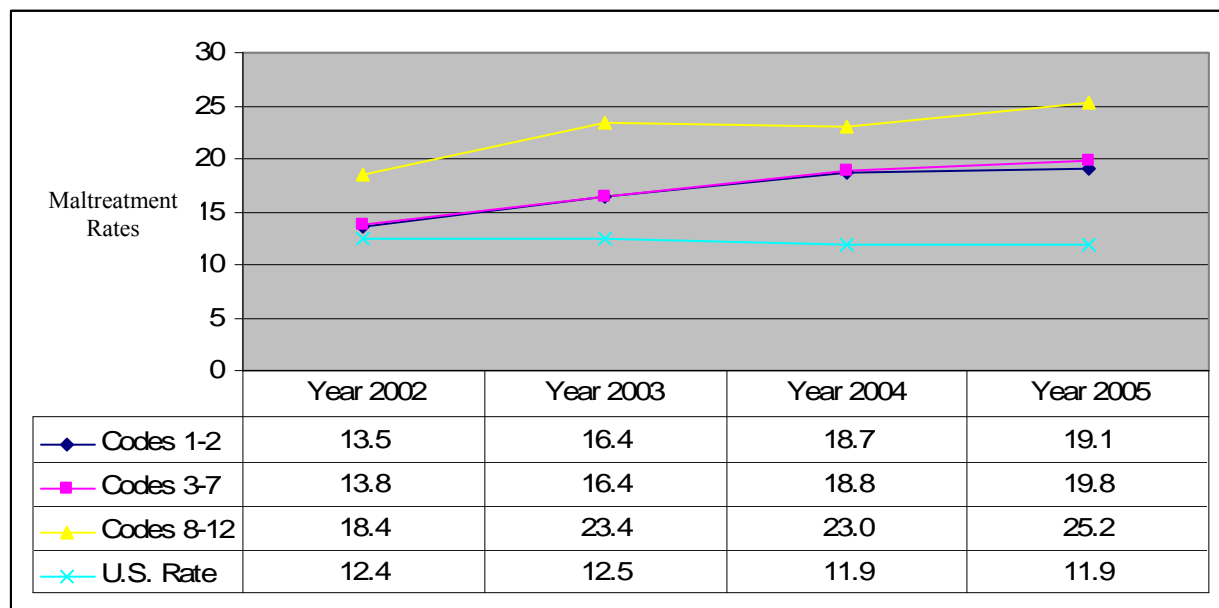
Drug arrest rates averaged 243.2 ($sd = 187.6$), while DUI arrest rates averaged 395.0 ($sd = 209.8$). At the time of the study, only 50 (50.5%) counties had licensed substance abuse treatment programs.

Minority status reflected little diversity within the state. Overall, minorities made up only 4.1% of the sample population, while minority percentages across counties ranged from

.20% to 18.4%. The overall poverty rate (9.1%) was lower than the 2000 U.S. average of 11.3% (Dalaker, 2001); however, rates ranged across counties from 4.6% to 15.5%.

The sample had an average maltreatment rate (number of children per 1,000) of 19.3; however, rates varied widely across counties. During the 2002-2005 study period child maltreatment rates ranged of .9 to 59.1. Maltreatment trends varied from rural to urban areas, with nonmetropolitan/nonadjacent counties (UIC = 8 to 12) having higher rates for every year of the study than nonmetropolitan/adjacent and metropolitan counties (Figure 1). Additionally, the very rural counties had an average child maltreatment for 2005 (25.2) that was more than twice the rate of the U.S. average for that year (11.9).

Figure 1. Child Maltreatment Rates by Urban Influence Compared to the U.S. Rate



Multivariate Analysis

Those variables that revealed significant correlations with child maltreatment were entered into a regression model to control for spuriousness and to determine the overall impact of the predictor variables on the criterion. For those counties with Urban Influence Codes of 1 or 2, treatment program availability and DUI arrest rates did not significantly correlate and, therefore, were not included in the analysis. The variables that did yield significant correlations failed to maintain their significance in the regression: minority status ($\beta = .243$), drug arrests ($\beta = .236$) and poverty status ($\beta = .095$) (Table 2).

Table 2. Regression Effects on Child Maltreatment Rates

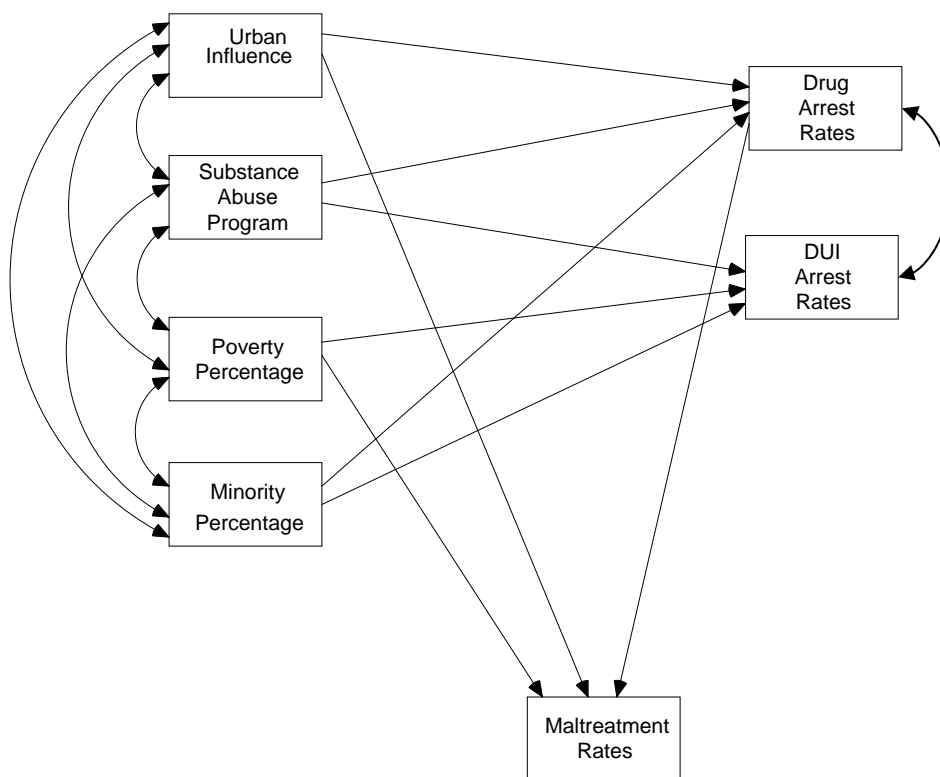
| | <i>Access Codes 1 & 2</i> | <i>Access Codes 3 to 7</i> | <i>Access Codes 8 to 12</i> |
|-----------------------------|-----------------------------------|--------------------------------|---------------------------------|
| Poverty Status | 0.095 | .478*** | .265*** |
| Drug Arrest Rates | 0.236 | .235** | .377*** |
| Minority Status | 0.243 | .007 | --- |
| Treatment Program | --- | .001 | .200* |
| DUI Arrest Rates | --- | --- | -.007 |
| <i>R</i>² | <i>.240</i> | <i>.298</i> | <i>.244</i> |

For those counties with Urban Influence Codes that ranged from 3 to 7 (nonmetropolitan/adjacent), increased poverty ($\beta = .478$) and higher drug arrest rates ($\beta = .235$) were associated with higher child maltreatment rates. Similarly, increased poverty ($\beta = .265$) and higher drug arrest rates ($\beta = .377$) were significant in the regression for Urban Influence Codes 8 to 12 (nonmetropolitan/nonadjacent), however, the availability of substance abuse treatment programs was also significantly associated with increased child maltreatment rates ($\beta = .200$) in these counties after controlling for the other variables. DUI arrest rates and minority status failed to maintain any significant impact on child maltreatment after inclusion in the regression analysis.

The overall impact of these variables on child maltreatment rates varied little across county codes. The variables for counties with Access Codes from 3 to 7 had the most impact ($R^2 = .298$), followed by Codes 8 to 12 ($R^2 = .244$) and Codes 1 and 2 ($R^2 = .240$).

Path Analysis

Path analysis determined the direct and indirect relationships between the predictor, criterion, and control variables in the study (Figure 2). Data for all four years of the study were included in the analysis. Each county was entered four times, once for each year, to arrive at an average for the four-year period. This increased the sample size from 99 to 396. The computer program AMOS (Arbuckle, 2006) was employed to obtain path estimates using maximum likelihood estimation (MLE) and to evaluate the overall fit.

Figure 2. Path Analysis using all Urban Influence Codes

The structural model indicated that counties with less urban influence ($\beta = .175$), higher poverty percentages ($\beta = .299$), and increased drug arrest rates ($\beta = .317$) had higher rates of maltreatment (Table 3). No other variables directly impacted child maltreatment; however, treatment program availability ($\beta = .061$) and higher minority rates ($\beta = .098$) indirectly impacted child maltreatment through other variables (Table 4). While urban influence directly impacted child maltreatment, it also provided an indirect effect ($\beta = -.050$) through drug arrest rates.

Table 3 Standardized Regression Weights

| Regressions | β |
|--------------------------------------|---------|
| Child Maltreatment - Urban Influence | .175 |
| Child Maltreatment - Drug Arrests | .317 |
| Child Maltreatment - Poverty Status | .299 |
| Drug Arrests - Minority Status | .309 |
| Drug Arrests - Program Availability | .194 |
| Drug Arrests - Urban Influence | -.157 |
| DUI Arrests - Poverty Status | -.123 |
| DUI Arrests - Minority Status | .338 |
| DUI Arrests - Program Availability | .220 |

Counties with large minority populations had increased drug ($\beta = .309$) and DUI ($\beta = .338$) arrest rates. Poverty was also associated with DUI arrest rates ($\beta = -.123$); however, the relationship was a negative one. DUI arrests did not have a significant impact on child maltreatment

Table 4. Indirect Effects

| | Urban Influence | Treatment Program | Minority Percent | Drug Arrest Rates | Poverty Percent |
|-----------------------------|--------------------|----------------------|---------------------|-------------------------|--------------------|
| Drug Arrest Rates | .000 | .000 | .000 | .000 | .000 |
| DUI Arrest Rates | .000 | .000 | .000 | .000 | .000 |
| Child Maltreatment Rates | -.050 | .061 | .098 | .000 | .000 |

The R^2 for this model was .227 and the fit values were CFI = .990, TLI = .595, and RMSEA = .053. Chi-square was non-significant at 10.5 ($p = .062$), with 5 degrees of freedom ($\chi^2/df = 2.01$). The ratio of the χ^2 to degrees of freedom is within the acceptable maximum value of 2 to 3, as recommended by Tabachnick and Fidell (1996). Overall, the results indicate an adequate fit between the proposed model and the data.

Discussion

The current study was designed to examine counties in Iowa to determine the relationship between substance abuse treatment availability, drug and alcohol arrests, and child maltreatment and to compare the effects across geographical regions. Poverty and minority status were included as extraneous and control variables.

The study was conducted as a preliminary report for a grant that would provide funding to expand this research in identifying gaps in programs and services and to examine the related effects of program and service availability/accessibility in poor, rural areas. The grant would allow for the direct interviewing of individuals rather than reliance on rates, which is a limitation of this study.

Hypothesis 1: Availability of certified substance abuse treatment programs will be associated with decreased child maltreatment rates.

Program availability was not directly or indirectly associated with child maltreatment in the path analysis and was positively related to child maltreatment in the regression for the nonmetropolitan/nonadjacent counties. This positive finding opposes the hypothesized direction; therefore Hypothesis 1 was unsupported.

While prior research suggests that improving available resources would reduce the rate of victimization, the empirical literature also provides possible reasons for these study results. It is important to first note that all the counties that lacked treatment programs were rural and, inherent in rural populations is a degree of proximity isolation.

Visibility of children and their families has been an issue of debate for research on the prevalence of child maltreatment, especially for minority and impoverished families (Barth, & Miller, 2001; Chibnall, Dutch, Jones-Harden, Brown, Gourdine, 2003; Sedlak & Broadhurst, 1996). For example, families in poverty frequently come into contact with professionals in order to receive assistance (i.e., financial aid). This contact increases the likelihood abuse will be noticed and reported. The challenge is determining if the increased incidence of maltreatment is due to increased visibility or some other factor like poverty.

Likewise, visibility may relate to child maltreatment in rural populations; however, the issue would be decreased, not increased, visibility. Isolation is a common characteristic of abusive families and rural areas provide more isolated places for child maltreatment to occur. Menard and Ruback (2003) found that child victimization rates did not vary across rural and urban locations; however, higher abuse reporting, substantiation, and sentencing rates were positively associated with urban areas.

The rural climate may also affect child maltreatment reporting. Rural locations are characterized by greater acquaintance density (more acquaintances in the community) (Menard & Ruback, 2003) and reporting may be more difficult when the reporter is familiar with the one being reported. Even police officers can be impacted by this phenomenon. Decker (1979) found that rural officers who grew up in the areas they work prefer to deal with problems informally rather than through government intervention. These rural characteristics can also affect drug and DUI arrest rates, making it appear that substance use in rural areas is lower.

Hypothesis 2: Drug and DUI arrest rates will be higher for counties that do not have certified substance abuse treatment programs

Drug and DUI arrest rates were higher for counties with treatment programs; therefore, the second hypothesis was unsupported. However, similar to the child maltreatment argument, drug and DUI arrests may be lower in the counties that lack programs (all rural counties) because of visibility and reporting issues.

Alternatively, this relationship could suggest that programs are located where the need is greatest. It is important to determine if this is the case or if individuals in more rural areas are being overlooked because they are less visible.

Hypothesis 3: Child maltreatment rates will be higher in counties with high drug and DUI arrest rates.

This hypothesis was supported for drug arrests but not for DUI arrests. Child maltreatment rates were higher in counties with increased drug arrests in the path analysis; however, this relationship varied across geographical regions in the regression analysis. While increased drug arrests were associated with increased child maltreatment rates for nonmetropolitan/nonadjacent and nonmetropolitan/adjacent counties, the relationship was not significant for the metropolitan counties. DUI arrest rates were significant only in the correlation and, even then, the relationship was negative instead of the anticipated positive finding.

While the empirical literature supports the drug use/child maltreatment relationship (Albert & Barth, 1996; Chaffin, Kelleher, Hollenberg, 1996), the DUI arrest finding is inconsistent with previous studies (Widom & Siller-Sturmhofel, 2001). The difference could be that DUI arrests are more associated with alcohol use and drug arrests with other types of substances. If that is the case, this finding could be indicative of differences between largely

rural and more urbanized states, suggesting that substance use and child maltreatment in rural states is a stronger predictor of maltreatment than alcohol use.

Another consideration is that part of Iowa's child abuse definition includes unlawfully manufacturing a dangerous substance in the presence of a child (Iowa Code 232.2), which often results in the reporting of abuse for children who are present at the time of their parent or guardian's drug arrest. The mandate creates an automatic association between drug arrest rates and child maltreatment rates.

Hypothesis 4: Variation will exist between nonmetropolitan/nonadjacent, nonmetropolitan/adjacent, and metropolitan counties.

Nonmetropolitan/nonadjacent counties had higher child maltreatment rates than the nonmetropolitan/adjacent and metropolitan counties. Additionally, the variables associated with child maltreatment varied across county type. None of the selected variables for the metropolitan counties maintained their significant relationship with child maltreatment in the regression. Poverty and drug arrests were significant for both the nonmetropolitan/adjacent and nonmetropolitan/nonadjacent counties, while only treatment program availability was significantly related to child maltreatment in nonmetropolitan/nonadjacent counties. These findings support Hypothesis 4.

Poverty Status

Included as an extraneous variable, poverty had a substantial impact on child maltreatment. Previous studies (Drake & Pandey, 1996; Lee & Goerge, 1999) support this relationship while some suggest the actual effect is indirect and mediated by stress. Stress has been conceptually and empirically associated with child maltreatment in the research literature (Whipple & Webster-Stratton, 1991; Hillson & Kuiper, 1994) and some researchers suggest this variable is a powerful predictor of maltreatment potential (Burrell, Thompson, & Sexton, 1994; Cadzow, Armstrong, & Fraser, 1999).

It is important to note that no path was established between poverty and drug arrest rates; however, counties with high poverty rates were significantly related to DUI arrest rates but not in the expected manner. Poorer counties actually had lower DUI arrest rates. This finding is inconsistent with previous studies (Smyth, et al., 1998) and warrants further research.

Minority Status

Counties with large minority populations were more likely to have treatment programs, as well as higher drug and DUI arrest rates. There is considerable agreement in the empirical literature that consideration of racial and ethnic values is critical in engaging and maintaining people substance abuse recovery (van Wormer, 2008). Because of the very small percentage of minorities in the state of Iowa, this fact may be overlooked. As a result, training on how to provide proper treatment to these populations may be lacking.

Minority status did not directly impact child maltreatment; however, it did provide an indirect effect. Various mediating variables have been identified in the relationship between minority status and child maltreatment and this study suggests that substance abuse may be one of those variables. Recognizing and treating indirect effects can reduce the time and money spent on treatment by directing focus on the true source of the problem.

In conducting the analysis, one county of particular interest was Wapello County in southeast Iowa. In 2005, Wapello had a child maltreatment rate of 59.1, compared to the U.S.

rate of 11.9. Within five years, drug arrest rates in Wapello increased 45% from 232.3 in 2000 to 336.7 in 2005. Iowa's 2005 drug arrest rate was 233.5. Wapello has an Urban Influence Code of 8 (nonmetropolitan/nonadjacent) and has a certified substance abuse treatment program. It also has the eighth highest poverty rate in Iowa.

Limitations

Many studies of rural populations use report rates to measure social occurrences and events. Child maltreatment rates and drug and DUI rates were used in this study, however, caution is necessary when interpreting this information. Report rates express the extent of the problem based on the number of cases reported, substantiated, or prosecuted. Many cases are not brought under the scrutiny of the child welfare or penal systems and, as a result, are excluded from the analysis. By excluding these data, important information about the variables under study may be overlooked.

Generalizability is limited in this study. While rural Iowa is similar in structure to other Midwest rural counties, these findings may not translate well to other rural areas of the country (i.e., Southern U.S. states).

Conclusion

This study indicates that poverty and increased drug arrests are associated with increased child maltreatment rates in nonmetropolitan/adjacent and nonmetropolitan/nonadjacent counties. It also signifies the importance of understanding the effects of rurality and minority status on increased substance use. Additional, more rigorous, studies are necessary to more accurately determine the extent of these relationships, and to examine poverty and substance use more closely.

Politically, rural populations have not been supported by federal or state governments (Mack & Boehm, 2001). Rural thought is rarely represented in the media, so policymakers mistakenly advocate for and create policies without rural needs in mind. As a result, most federal and state policies fail to consider that standards applied to large urban areas may not adequately address the unique needs of rural families.

Rural populations have also been largely ignored in the empirical literature. While data collection of this group is less accessible, and therefore less convenient, than urban groups, it is imperative that urban study results not be generalized to rural populations. In areas such as child maltreatment and substance abuse, rural issues differ from urban issues. Travel, accessibility of services, and proximity isolation are very real considerations for social service employees who work with individuals and families from rural areas.

Given its findings, this study indicates a need for rural studies that involve direct contact instead of an over-reliance on rates as measures of rural phenomenon. Social researchers need to be engaged in research of this neglected population in order to contribute to political developments that impact their functioning. Similarly, research can provide support for the need for resources in rural areas and can assist social workers in advocating for these resources.

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